

# Table Saw Sled Plan of Procedure

by Carl Stammerjohn - [carlstammerjohn.com](http://carlstammerjohn.com)

Materials (this is a guide; your requirements may vary)

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| Base         | 1 – 1/2" x 30" x 30" Baltic birch or equivalent (see Step 1 for sizing info) |
| Runner       | 2 – 3/8" x 3/4" x 30" quartersawn maple (or equivalent)                      |
| Fence        | 1 – 1 3/4" (min) x 5" x 30" poplar or equivalent*                            |
| Brace        | 1 – 1 3/4" (min) x 5" x 16" poplar or equivalent (optional; see below)       |
| Guide screws | 10 – #6 x 3/4" flat head screws  |
| Fence screws | 20 – #8 x 2" flat head screws  |

1. Determine the size of your sled. Some things to keep in mind: Make the sled as large as possible, but not so large that you can't control it; 30" x 30" is about the largest possible. Make sure that the sled can be easily supported when pulled all the way towards you. Where you will store your sled when not in use may also restrict the size. A typical sled for a cabinet saw is around 28" square. The amount of sled to the left of the blade should be 1 1/2" to 2" wider than that to the right.
2. Cut the sled base to size, ensuring the edges are absolutely square. Also, align the grain so that it is parallel to the blade. If the grain is perpendicular to the blade, you will get tearout on the working surface of the sled.
3. Make two runners using a hard, stable wood (quartersawn maple is ideal), usually 3/8" x 3/4": Start with a 4/4 x ~1" piece and surface one face on the jointer. On a planer, surface the material to 3/4" thick, so it fits with no play in the miter slots on your saw; a tiny bit snug is ideal. Joint one of the remaining faces square. Then, set the fence on a table saw to 3/8" and rip two pieces to 3/8" x 3/4".
4. Locate where the kerf will be located on the base: Mark the center on the front edge of the base, then make a mark 1" to the right of that. That will be the kerf location (you may want it in a different location; this is my recommendation). Hold the base in position such that the desired kerf location is aligned with your blade, then mark where the right runner will be located.
5. Cut a dado for the right-side runner on the bottom of the base; it should be 3/4" wide (to fit the runner) and 1/16" deep. Use a flat-top-kerf blade or dado set and guide the piece using the fence. The runner should fit with no play.
6. Screw the right-side runner in place from the top using five #6 screws. Position the front and back screws about 2" from the edges so they won't be under the fence and brace. Make sure that the screw heads are countersunk completely. Also make sure the ends of the screws don't stick out the bottom; if so, file them off.
7. Insert the left side runner into the left miter slot on the saw. It is not necessary to dado the sled for this runner; doing so is only suggested if you suspect future abuse of your sled. Mount the sled base on the saw and screw the left runner to the sled the same as the right one. You may need to put a few coins in the miter slot to space the runner high enough for the screws to reach.
8. Cut the fence and brace to the desired sizes and shapes. Don't round over the edges much; using a large roundover just decreases the surface area of your fence and makes it more difficult to clamp things to it. A 1/8" roundover is plenty. Make sure the fence faces are flat and that the bottom edge is square to the faces. Cut a small rabbet, about 3/32" x 3/32", on the front bottom edge of the fence.

9. Align the fence even with the back edge of the sled base and screw in place with two #8 screws, one at each end of the fence.
10. If using a front brace, mount it using at least four screws. Make sure the screws near the kerf will not interfere with the blade when it's tilted. The brace can be left off if desired. It will make for a less durable sled, but will give you more flexibility in use.
11. Run the sled back and forth to check the fit of the runners. Note where dragging occurs by looking for black marks or burnishing on the side of the runners. A scraper works great for removing the offending material. The ideal fit is one that lets the sled slide smoothly with no play. When the fit is correct, wax the runners and sled bottom with paraffin wax.
12. On the saw, cut a kerf in the bottom of the sled, stopping approximately 8 inches from the fence.
13. Prepare a board about 3/4" x 8" x 24", with the long sides parallel. Place the board on the sled and against the fence. This will allow you to make a cut and check for squareness without completely cutting through the sled bottom.
14. Prepare a board to check the sled for squareness\*\*. If you started off with a very square base and attached the runners and fence properly, your sled should cut square. If not, adjust the fence by loosening the attach screws and moving it. Take care to keep the fence straight and flat. Continue the process until you are happy with the cut.
15. Permanently attach the fence and brace with more #8 screws, about every 2-3". Make sure you keep clear of the kerf (tilted blade, dado cuts, etc.).
16. Complete the kerf cut all the way through the sled. Make another test cut to ensure everything is okay.
17. A 4" x 4" or box can be added to cover the fully extended blade once it has cut through the board. If you do this, be careful that the attach screws do not interfere when the blade is tilted.
18. Enjoy having a safe and square sled tailored to your saw!

#### \*\*Checking for square

Prepare a board (MDF works great) about 12" wide x 16" long. The thickness can be from 1/2" to 3/4". Raise the blade so it will cut a little more than halfway through the thickness of the board. With the long edge of the board against the fence (or other reference), cut about 1/16" off the end of the board. Turn the test piece over and make a similar cut on the same end. You will now have a narrow rabbet on the end of the board.

If the cut is square, the rabbet will be consistent from one end to the other. If it gets narrower on one end, the cut is not square. The amount the sled is out of square is equal to half the amount indicated by the tapered rabbet.

\*For a very robust fence, make it out of three pieces of 3/4" Baltic birch, laminated together. Ideally, the grain on the outer faces should be vertical when the fence is mounted on the base. Ensure the fence is flat by gluing up on a flat reference surface.